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By James MacAlister.

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# MANUAL TRAINING

IN THE

# PUBLIC SCHOOLS OF PHILADELPHIA

BY

JAMES MacALISTER, LL.B.

Superintendent of Schools

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# PREFATORY NOTE.

The following pages contain a comprehensive account of the scope and character of the manual training at present given in the Philadelphia public schools. The question of manual training has of late years been attracting a great deal of attention in every part of this country, and it has been thought that a statement of what has been accomplished in a large public school system might be of general interest. It is now about five years since the introduction of the various features of manual training was begun in the Philadelphia schools, and the experience gained ought to prove of some value to other communities who are interested in the movement. It will be understood that the systematic development of the training through the various grades of the curriculum has not yet been accomplished. Different phases of the work herein described have been added step by step, and it yet remains to connect the kindergarten with the manual training school by the elaboration of a series of manual exercises which will supplement the existing course of study at every point and thereby render the training of the pupils more symmetrical and complete as a whole. The Appendix contains detailed statements of the courses of instruction in several of the departments, so far as these have been systematized.

JAMES MACALISTER.

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# Manual Training in the Philadelphia Public Schools.

## THE GENERAL QUESTION OF MANUAL TRAINING.

No one having the slightest interest in education can have failed to notice the attention which the question of manual training has been exciting during the past few years. Indeed, it may be said without exaggeration to be the leading educational question of the day. In teachers' conventions, boards of education, educational journals and the daily papers, it is now more discussed than any other school problem. The necessity for some modification in the instruction and training given in the public schools that shall bring them more into harmony with existing social conditions is very generally admitted, and it is useless to deny that this demand points in the direction of rendering the schools more practical in the highest and best sense of that term. It may justly be said that this new feature of education has been more heartily welcomed, and that more has been done in putting it into practical operation in Philadelphia than in any other city of this country. A good deal has been said and written on the subject here; but in view of the experience we have gone through and the fact that no small degree of misconception still exists with respect to what manual training means and what it undertakes to do, it has been deemed advisable to restate the leading principles upon which it rests its claims as one of the most important and far-reaching educational reforms of the present century.

Much of the confusion which exists in the public mind concerning the movement is due, I believe, to the want of

a term which would adequately designate the nature and object of the training it is proposed to introduce into the school curriculum. The use of the term "industrial" is, I think, unfortunate. It has a well-accepted meaning, and very naturally leads to the supposition that what is intended is the teaching of specific occupations. The term "manual training" is to be preferred, but that also is to some extent misleading. Speaking for myself, I must repudiate any intention of specializing the work of the elementary schools in the direction of economic production. The object of the public school is education in its broadest sense. If industrial or manual training cannot be shown to be education in this sense, it has no place in the public school. We have no more right to teach carpentry or blacksmithing than we have to teach law or medicine. The supreme end of education is the harmonious development of all the powers of a human being. Whatever ministers to this end is education; whatever interferes with its accomplishment, no matter how valuable in itself, belongs outside of the elementary school.

It is well, also, that we should be on our guard against a kind of *pseudo* manual training that is finding its way into the schools. As is always the case with new movements, there is a good deal of experimenting with little knacks, which do nothing for either discipline or knowledge. These are put forward by well-meaning persons as manual training, and great harm is done in this way in misleading the public and wasting the time and energies of pupils.

Manual training is founded upon the claim that it gives a more complete education than is afforded by the course of instruction now followed in the schools. It undertakes so to modify the existing methods of training as to yield an education that shall make the graduate of the public school a more fully developed and efficient member of society. The instruction given in the schools is too one-

sided. It cultivates chiefly the intellectual powers to the neglect of the physical and moral. Lord Bacon, long ago, stated the object of education to be "the cultivation of a just and legitimate familiarity betwixt the mind and things." No better definition of the office of the teacher could be given. To a very large extent the schools neglect the training of those powers which bring the mind into true relations with its environment. A very large portion of the time of pupils in schools of every grade is devoted to the study of words. Educational reformers for nearly three hundred years have been seeking to remedy this defect. The introduction of object lessons and of science instruction were well-meant efforts in this direction, and manual training is, in fact, nothing more than the further extension of the same principle. It seeks to train the hand and the eye, not for the purpose of superseding the action of the mind, but as the efficient agents of the mind in gaining a truer and ampler knowledge of the world. That dominion over nature which the inductive philosophy proclaimed as the object of all science can only be obtained on the lines which Bacon laid down. Emerson says in his terse way that "manual labor is the study of the external world." It is in the spirit of this maxim that the new education seeks to widen the training of children in the direction of the harmonious development of mind and body through such agencies as the best experience may dictate.

There is a psychological foundation for manual training which should not be overlooked. All educationists are now of one mind that the first duty of the teacher is the cultivation of the perceptive powers. No matter what system of philosophy we may profess, we are all agreed that knowledge begins in perception. The tactual and visual perceptions are by far the most important. "The former of these gives us the most direct mode of apprehending things; the latter the largest grasp of external

things, of any of the modes of perception."[1] The progress of perception grows with the increase of the power of visual and tactual discrimination. Now the purpose of manual education is primarily the training of the hand and eye. Hence drawing, as a mode of cultivating visual perception, is made one of its prominent features; and the introduction of tools in connection with wood, iron and other materials is simply for the purpose of so cultivating the hand as to enable the mind to attain to a larger and more exact knowledge of things as they exist in nature and are used in the industrial arts. It would therefore be easy to show that the introduction of manual work into the schools is important because of the effect it would have upon the mind itself. The processes of manual training afford a better means of cultivating the faculties of reason and judgment than many things which now find place in the courses of instruction. Measurements, comparisons, the adjustment of means to ends, the co-operation of mind, hand and eye, all conduce to a broader mental culture than can be gotten from many of the studies which at present usurp so large a portion of the pupils' time.

We do not need to depend wholly upon theory for the correctness of this view of manual training. Experience has shown that manual training so stimulates the general intelligence of pupils that the time occupied in the laboratories or work-shops more than compensates for the amount of text-book work which it supplants. It would be easy to find ample testimony to this effect. The schools of a generation ago were certainly inferior to the schools of to-day as to teaching, text-books and other appliances; but no one will gainsay the statement that they produced men and women possessing a mental and moral force of character quite equal to those of our own time. Is not this largely to be accounted for by the fact that, while the advantages were poorer and less time was

[1] Sully.—*Outlines of Psychology.*

spent in school, the boys and girls, in the rural life which then chiefly prevailed, were brought more largely into contact with things through work upon the farm and in the home, and their mental resources were thereby increased to a degree that the purely intellectual drill and the memorizing processes of the present day cannot be made to yield? The introduction of sewing into the girls' schools of Philadelphia, which occupies from one to two hours per week, has in no way impaired the results obtained in the other studies. In the Manual Training School, the work done by the boys in mathemetics, literature and history is, to say the least, in no respect inferior to that of schools of a similar grade in which the whole time is occupied with class-room work.

But there are more practical reasons for making manual training a part of the education given in the public schools. Its introduction would bring our education into closer harmony with the spirit and tendencies of the present age. No one will deny that it is the duty of the state to make the schools minister to the actual necessities of our civilization. Herbert Spencer declares that "the function which education has to discharge is to prepare us for complete living," a proposition which has withstood no small amount of adverse criticism; and Emerson, in one of his wise sentences, says that "the great object of education should be commensurate with the object of life." If we acted in the spirit of these maxims, we should hear less of the objection so often urged, that the education given in the schools is not sufficiently practical. I would not be understood as arguing for practical education simply as such. At the same time, I believe that the education of a community should have direct reference to its social needs. This is eminently the age of industrialism. Science and its applications to the arts and industries of life reigns supreme. The wealth, power and greatness of a nation depend to a very large extent upon its natural

resources and the quality and quantity of its skilled labor. As Carlyle says, "The proper Epic of this world is not now 'Arms and the Man;' no, it is now 'Tools and the Man;' that, henceforth, to all time, is now our Epic." It is impossible for the schools to ignore this condition of things. It is not our business to train boys and girls to be mere breadwinners, but we must see to it that the education we give to them confers the power to hold their own in the struggle of life upon which they must sooner or later enter. I have no sympathy with those who claim that the public school gives too much education to the masses of the people. It is impossible to over-educate any human being. The only question is as to the kind of education which should be furnished. We must train our boys to believe in work; to respect work; to seek work. This should be a part of their education; and the way to do it is not to teach them trades in the public schools, but to broaden the general culture which those schools give in such ways that the young people shall begin their career in sympathy with the social conditions which surround them; will seek for success, independence, happiness, by striving, not against, but with the forces which compel success and its rewards.

It is my sincere conviction that the best means of doing this is to put manual training into the curriculum of the common schools. As at present constituted, the schools are directed almost wholly toward a literary outcome. The traditions of the past are still all-powerful in the common school as well as in the college. We need to make our education more real. In doing this, we shall not make it less noble and refining, but we shall give to the children a wider vision and a braver heart, and we shall send them forth into the world better able to deal with the realities of life and to discharge its duties fitly and successfully.

There is another aspect in which the introduction of

manual training may be viewed. The great question of the hour is the struggle between labor and wealth. This question cannot be put out of sight. We are gradually coming to see that one of the best ways to meet the difficulties which it raises is to elevate the worker himself. What the working-man is seeking is a larger participation in the fruits of his industry; but this can only be accomplished by the laborer putting more skill and intelligence into the work of his hands. The problem for every civilized nation to-day is how the largest amount of intellectual development can be given to its industrial population. There will be no peace between labor and capital until labor has recognized the necessity for intelligence, and capital has recognized the just rights of labor, enlightened and ennobled by knowledge. What is needed is to bring thought and labor together; to make every worker a thinker and every thinker a worker; and there is no place where this can be done so well as in the school. It is here that enduring principles and habits can best be formed. We talk a good deal of the public schools as the nurseries of good citizenship. We shall have a better right to make this claim for them when they undertake to fit their pupils for the actual conditions of existence; for the world as they will find it—a world in which it is a privilege as well as a necessity to work; and in which work, animated and directed by the power which comes from a well-trained mind, cannot fail of its just appreciation and reward.

There are many other advantages which would accrue from the introduction of manual training into the public schools, but to which only the briefest allusion can be made in this place. Not the least of these advantages would be the larger degree of confidence and support which the schools would receive from the general public. It is useless for us to conceal the growing dissatisfaction with many of the features of the public school system.

Some of these objections are no doubt ill-founded; but there are others to which no valid answer can be made. What the people want is schools more in accordance with the real needs of society and the principles which the advance of scientific methods of instruction demands. Nearly every city experiences difficulty in getting the appropriations which are necessary to keep pace with the growth of population and the improvement of the schools. I believe a larger degree of sympathy and support for the public schools would be obtained, if we could only make up our minds to set aside the antiquated and useless work that is required of pupils, and substitute in place of it more rational methods of development and training. I have no doubt also that the period of school attendance would be considerably prolonged by such a course. The lament in every large city is that the mass of the children spend so little time in the schools. The tens of thousands are in the primary grades; the few thousands in the upper grades and high schools. The people, I think, would be quick to discover the advantages of giving their children more education, if this education could be made better in quality, which is equivalent to saying more available for the practical uses of life. I am convinced that the introduction of manual education would do more to rid the schools of tasks upon which the time of the pupils now runs to waste than anything we could do for them. The eight years of the common school course should certainly yield better results than are now obtained. A great deal that we persist in regarding as absolutely essential will sooner or later have to be discarded, and the modification of the course of instruction, in accordance with the general principles here indicated, will, I am sure, tend to hasten the coming of this better day.

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## MANUAL TRAINING DEPARTMENTS.

The efforts which have been made to apply the principles outlined above in the Philadelphia public schools during the past five years, have created so much interest that it seems desirable to recite briefly how far and in what directions the work of organizing the instruction and training has proceeded.

The manual training now given is embraced in the following departments:—

1. Manual Training School.
2. Industrial Art School.
3. Sewing in Girls' Schools.
4. Cookery in Girls' Schools.
5. The Kindergartens.

To these might be added Clay Modeling and Paper Folding and Cutting which have been gradually finding their way into the primary schools; but as these branches have not yet been systematically developed they cannot be regarded as an established part of the regular course of instruction.

### I. MANUAL TRAINING SCHOOL.

The Manual Training School provides a three years' course of instruction in some respects parallel with that given in the High School. It is less extended in the departments of language, literature and mathematics, so as to make room for the courses in manual training and drawing which are its special features. Boys are admitted after having finished the grammar school course on precisely the same standard as is prescribed for admission to the High School. The first class was graduated in 1888. The instruction embraces the following courses:—

1. *Language and Literature.*
2. *Science.*
3. *Mathematics.*

*4. Drawing.*

*5. Manual Training.*

As the best means of indicating the scope and character of the manual training, the outline of this course has been given in the appendix, and also the course in drawing, taken from the circular of the school. While these two courses are the distinctive features of the school, it must be borne in mind that the others are not neglected. On account of its novelty the manual training is apt to make the strongest impression upon visitors, and they do not always discover that the literary and scientific training are just as fully recognized and provided for. Anything like a one-sided culture is carefully avoided, the aim of the school being to give to each branch, whether scholastic or manual, such relative importance as shall lead to a fuller and more symmetrical development of mind and body than has been possible under the old systems of secondary education.

The success which has attended the Manual Training School from the first is the best guarantee of the soundness of the principles upon which it is organized and conducted. Beginning a little more than four years ago, in a very humble way, it has steadily grown in public confidence and approval. It has more than justified every claim that was made in its behalf. Every available foot of space is now occupied, and it has now become impossible to admit all the pupils who apply for admission. The Board of Education has therefore been brought face to face with the question whether the time has not come for opening another manual training school in such a quarter of the city as may be deemed most advantageous to the public interests. The original intention of the Board was to establish four or five of these schools as fast as a just regard for the other departments of the school system would permit, and the growing demand for the kind of

education which this school represents will render the fulfillment of this purpose a necessity at no very remote date.

### II. INDUSTRIAL ART SCHOOL.

It was in this school that the attempt to introduce manual training into the public schools of this city was first made. The term is here used in its most general sense, and not with the special meaning which now attaches to it. This attempt was made by Mr. Charles G. Leland, the well-known *litterateur*, who devoted himself to the experiment with all the vigor and enthusiasm so characteristic of his nature. It was a labor of love with him, and he spent several years in the work without other reward than the success which attended his efforts to promote an interest in the educational movement which he so ably represented. The school attracted much attention, and its influence was widely felt through the magazine articles and other publications in which Mr. Leland so attractively set forth the principles on which it was founded, and the objects it was intended to accomplish. After Mr. Leland severed his connection with the school, it was re-organized by the Board of Education and brought into more intimate and regular relations with the general school system. The school is open to boys and girls who come from the various grammar schools of the city. The pupils attend two hours per week, permission being granted for this purpose, on the request of their parents, by the principals of the schools to which they belong. There are now about seven hundred boys and girls, from ten to fifteen years of age, on the roll. This is but a small proportion of the whole number of grammar school pupils; but the Industrial Art School has served the important purpose of keeping up an active interest in manual training, and furnishing a practical demonstration of its value, till such time as an elementary scheme can be worked out

and put into operation throughout the city. The revised course of instruction and training, which extends through two years, will be found in the appendix.

### III. SEWING.

Sewing was made a part of the regular instruction in the girls' schools in 1885. The success which had attended its introduction into the Girls' Normal School, several years prior, opened the way for this important step. At first a few teachers were employed, as an experiment, in schools situated in different parts of the city; but a few months subsequently, the Board of Education felt warranted in extending the instruction into all the girls' secondary and grammar schools. As now organized, the girls take up the sewing at the beginning of their third year of school, and keep on through the succeeding grades of the local schools, and the Normal School if they should go there. At present about thirty-five thousand girls receive regular and systematic instruction in the use of the needle. The instruction is limited to plain sewing, because it has been found that this yields better training as well as more practical results than the fancy-work which is sometimes taught. All the instruction is given by special teachers of whom there are now forty-four in the employment of the Board. The question is often asked whether the instruction could not be entrusted to the regular class-teachers. There is no abstract reason why an exception should be made of a branch so intimately connected with the pursuits of women; but experience has shown that it is safer to intrust a new feature of school work so radical as this to specialists. The regular teacher has already so much responsibility that she is loath to undertake a new study, with the methods and management of which she is wholly unacquainted. Wherever sewing forms a feature of school instruction upon a large scale, special teachers

have been found a necessity to ensure satisfactory results. Future experience may lead to a different conclusion; but I am strongly convinced that at present the wise course is to depend upon teachers whose attention is concentrated upon this one branch, and who can be held to a strict responsibility for the work.

The place which the sewing now holds in the schools has not been reached without considerable discussion and opposition. But all this has passed away, and the public have accepted the results as demonstrating the value and importance of the training which it gives. The testimony of the principals of the Girls' Grammar Schools has been unanimous as to the beneficial influence of the sewing lessons upon the pupils. They break up the monotony of the school; they afford a pleasant relief from the pressure of the purely intellectual studies; they cultivate respect for the work of the hands; they train to habits of neatness and order in practical affairs, and they confer an accomplishment which every girl will learn to value in after life. One needs to know something of the methods of instruction pursued in the sewing class to feel warranted in making such statements; but the many thousands who witnessed the exhibition of the classes at work, and the extensive display of articles which the girls had produced, last spring, were surprised to discover how much valuable educational training can be gotten from so familiar an art, when its processes are systematically developed by a skillful teacher.

The sewing lesson is a good example of the dignity which can be given to any form of manual work upon which intelligence is brought to bear, and it points the way to methods of training that will help to bring the school into closer relations with the home, and thereby raise the general level of human culture among the masses of the people.

A synopsis of the scheme of instruction and training in sewing is given in the appendix.

## IV. COOKERY CLASSES.

The introduction of cookery as a branch of instruction in the public schools is based upon reasons precisely similar to those which may be urged in behalf of sewing. These have been already presented in a general way, but inasmuch as the cookery has not been so fully discussed and is still regarded as an experiment, it seems proper that the grounds upon which it rests should be more explicitly stated.

1. While much may by said in behalf of the intrinsic advantages of cookery as an element in the schooling of girls, it seems to me to belong to the larger problem as to what should be the scope and purpose of a scheme of education intended for the masses of the people. If the view which has obtained among the most eminent thinkers on education for nearly three hundred years be accepted, viz.: that it must have reference to life in its broadest relations, it would be easy to show why an art which is so intimately connected with social well-being should find a place in the school. Political philosophers have demonstrated the important bearing which a sufficient supply of wholesome food has upon the physical, moral and economic conditions of a community; yet it is a well known fact that ignorance and wastefulness in the preparation of food prevail extensively among our people. The wide-spread interest in domestic as well as public hygiene which has been growing up of late years has borne good fruit in many directions; but nowhere has it proved more beneficial than in calling attention to the importance of cookery as one of the most important economies of right living. Indeed, so fully has this conviction taken hold of the minds of intelligent people, that no careful mother now considers her daughter's education completed without a course in one of the special schools for teaching this branch, which are to be found in every city. But these

private establishments reach only a limited number of the girls who are by and by to have the care or direction of households. It is therefore pertinent to ask whether a branch of knowledge and training which has so many valuable and useful features should not be recognized in the schools which are maintained for the benefit of all. This question is now receiving serious consideration in nearly every part of the country and it has already been affirmatively answered in a good many places.

2. But there is a second aspect in which the teaching of cookery may be regarded. In the multiplicity of agencies that are being pressed into service for the betterment of society, we are beginning to revert to the home as the chief center of the noblest as well as the most practical influences that go to the building up of all that is best in human life. With us, as with all the members of that branch of the Aryan family to which we belong, the home is the sacred place where every virtue has its birth and every social duty finds its strongest nurture. Hence the desire which educationists who take the right view of their responsibilities have always felt to connect the school with the family, the teacher with the parent. Any view of education which loses sight of this purpose must of necessity be partial and fail to recognize some of the forces which are most potent in the development and training of a human being. It is because the cookery lessons, like the sewing lessons, bring the school and the home into line with each other in some of the most real and practical affairs of life that they are finding favor with educational authorities. The public schools cannot much longer confine themselves to scholastic training. They must open the way to those kinds of knowledge and skill, and they must strive to form those habits, that tend to dignify every relation and occupation of life. The duties that appertain to home must be numbered among the most important acquirements of a girl's education; and the school which

undertakes its share of responsibility in supplying them is not departing from its proper sphere, but is fulfilling one of the chief functions that give it a right to exist. Surely no school can be regarded as pursuing unworthy ends in training girls to do with intelligence and pleasure the things that are too often looked upon as involving only degradation and drudgery.

3. A good deal might be said in favor of the purely educational value of the cookery classes. The instruction necessarily involves a good deal of scientific knowledge. The chemical composition and physiological effects of food are considered in connection with its preparation, and the information derived in this way is often of more value than if obtained from the study of the same principles as they are generally taught in the school-room. The instruction partakes largely of the nature of object-teaching in its best form, and is calculated to leave a much stronger impression upon the mind than can be made by a mere statement of scientific facts or even by such experiments as are possible in the class-room of a grammar school.

The introduction of cookery into the public schools is due to the Public Education Society, an organization which has rendered valuable service in promoting many desirable educational reforms in this city. A proposition was made by this association in 1887 to pay all the expense incident to conducting an experimental class in the Girls' Normal School. After careful consideration the offer was accepted and work was begun in September of that year. The experiment was carefully watched, and by the close of the June term, the Board of Education became satisfied, not only of the value of the instruction and training received by the young ladies, but the practicability of making it a regular branch of the curriculum. Arrangements looking to this end were effected by the Board's assuming the entire financial responsibility of the

instruction, and every young lady who now graduates from the school receives a course of lessons in the theory and practice of cookery. In the summer of 1888 the same society came forward again and offered to do for the Girls' Grammar Schools what had proved so successful in the Normal School. The Board accepted this liberal tender, and a number of classes—amounting altogether to about seven hundred pupils—were organized and started in October, 1888. The demand for admission was so urgent that twice that number could doubtless have been enrolled if the accommodations and resources at command had permitted. In the autumn of 1889 a second center for Grammar School pupils was opened. Here is evidence enough that the public appreciates and is ready to avail itself of this branch of instruction. In spite of the fact that the girls have to sacrifice two hours per week of school time for these lessons, the classes have been well attended, and the practicability of organizing and carrying forward a system of instruction that would include all the girls of proper age in the grammar schools of the city has been clearly established. The girls have taken great interest in the work and its value is thoroughly appreciated alike by them and their parents. At present the course laid out for the classes includes twenty lessons. It is a question, however, whether it would not be advisable to extend the number of lessons to twenty-five, so that more time could be given to the scientific features of the instruction; but this is a matter of detail which can be settled by a larger experience. From what has been said it is apparent that the problem of giving instruction in cookery in the schools has been fully solved. With respect to the grammar school classes the experiment may be regarded as entirely satisfactory, and all that is needed to make provision for the instruction of all the girls of proper age in this department of the school system is the opening of a sufficient number of school-kitchens in

such localities as will be conveniently accessible to the largest number of pupils. If the necessary appropriation can be secured, the Board can, by another year, put the cookery instruction upon the same footing as the sewing; and bring within the reach of every girl who remains a sufficient length of time in the schools a valuable accomplishment which, while enlarging her knowledge, will render her more efficient in every relation of life that she may be called upon to assume.

## V. THE KINDERGARTENS.

No explanation is needed for treating the kindergartens as a department of manual training. The philosophy of their founder, Friedrich Froebel, furnishes the best exposition of the principles upon which manual training rests, and the methods pursued in the kindergarten afford the best illustration of the application of these principles to the training of children.

The kindergartens owe their origin to the Sub-Primary School Society. Philadelphia has been peculiarly fortunate in the possession of associations formed to co-operate with the Board of Education in promoting improvements in the public schools. Seventy years ago the foundations of the public school system were laid by a body of distinguished citizens who had associated themselves for this purpose. The Public Education Society, to which reference has already been made, has been influential in cultivating public sentiment when needed in behalf of movements set on foot by the Board of Education, besides furnishing such tangible help as defraying the expenses of the experimental classes in cookery and the Exhibition of Industrial School Work hereafter to be described. The Sub-Primary School Society was organized for the express purpose of establishing the kindergartens. A few ladies and gentlemen, feeling the need of doing something for

the education of a class of young children which the public schools did not reach, came together in 1879, and commenced the work in a quiet, unostentatious way. A kindergarten was started in the public school at Twenty-second and Locust streets, six persons subscribing $100 each to defray the expenses. Other kindergartens were opened, and the movement progressed to such an extent that in 1881, the Sub-Primary School Society was incorporated to care for the growing enterprise. Under its management the work grew so rapidly that in 1883 an appeal was made to the City Councils, which resulted in an appropriation of $5,000 for the maintenance of free kindergartens. In 1885 the appropriation was increased to $7,500; the Sub-Primary School Society meanwhile raising by voluntary subscriptions a sum almost equal to that granted by the city. These appropriations were expended under the direction of the Board of Education, which thus came to stand as a sort of foster-father to the kindergartens. It was but one step farther to the adoption of the kindergartens by the Board. In 1886 Councils added the sum of $15,000 to the school budget for the support of kindergartens, and on the first day of January, 1887, they passed from the control of the Sub-Primary School Society to the Board of Education and became an integral part of the educational system of the city. The formal transfer was made at a public meeting held in the hall of the College of Physicians, January 20, 1887, at which the Hon. Robert N. Willson, Judge of the Court of Common Pleas, presided, and President Edward T. Steel accepted the kindergartens on behalf of the Board of Education.

In some remarks which the writer of this paper had the honor to offer at this meeting, an attempt was made to indicate the extent of the responsibility which the city was assuming, to state the nature and purpose of the kindergarten as a means of child education, and to point out the

place which it might be expected to fill in the general school system. I have found no occasion to change the views expressed at that time, and prefer, therefore, to give the substance of these remarks rather than to reproduce what was then said in another form.

*The Place of the Kindergarten in the Public School System.*

I feel that it is unnecessary to add a single word of congratulation upon the event which has brought us together this afternoon. The Sub-Primary School Society has done its work so well, the Board of Public Education has shown so hospitable a feeling towards the child whose foster-father it is about to become, the City Councils have so generously attested their interest in the movement, and the public sentiment is so well represented by this large and intelligent audience, that it would be superfluous for me to say anything tending to increase the general satisfaction and joy which have characterized the proceedings.

I may be permitted, however, to emphasize the importance of this gathering in its relation to the public school system of the city. It must prove a source of great encouragement to those directly concerned in the management of the schools and an augury of better things to come, to see so large a number of citizens assembled to celebrate an incident purely educational in character. It must be taken as an evidence of the increasing interest of the public in matters which, although of vital importance, are apt to be neglected in the multitude of duties which occupy so much of the time and energy of the men and women of a great city; but it cannot be too constantly borne in mind that schools cannot grow and prosper without the active sympathy and support to be derived from the intelligence and morality of the community whose highest welfare they are intended to promote. This meeting, I am sure, cannot fail to create in the minds of

teachers, school-officers and all who are in any way connected with the public education of Philadelphia, a realizing sense of the fact that our people are deeply interested in their schools, and are willing and anxious to do anything which promises to extend their influence or improve their quality.

It needs no prophet to say that this day will be a memorable one in the annals of the public school system of Philadelphia. A step has been taken which, if not checked by some untoward influence, will have far-reaching and beneficent effects upon the social well-being of the community. A great deal depends upon the character of the education which our children receive. The prosperity and happiness of this city stand more directly related to the public schools it maintains than to any other institution in its midst. The incorporation of the kindergarten into the public school system is an event of more consequence than may at first sight appear. It means really a new departure in the entire system, and the future of the schools will depend very largely upon the success or failure of the movement which has been so auspiciously inaugurated.

And this leads me to remark that there are serious questions involved in the transfer of the kindergartens from the Sub-Primary School Society to the Board of Public Education which must not be passed over while indulging in the felicitations appropriate to this occasion. In receiving the kindergertens, the Board of Education has assumed duties and responsibilities which will tax its intelligence and patience in new directions, and call for important changes in the general administration of the schools. Among the questions which will come up will be the extension of the school system very considerably beyond its present limits. The kindergarten means a large increase in the number of children entitled to the privileges of the public schools. You must not estimate

the number of children who will have to be taken care of, by the few hundreds who have been in attendance upon the kindergartens while under the management of the Sub-Primary School Society. The moment you make the kindergarten a public institution, you open the door to the thousands of little ones between the ages of four and six who help to swell the population of the city. The kindergarten is certain to become popular. It will not take the fathers and mothers of the city long to find out the advantages of schools by which the mental and moral training of their children can be begun two years sooner than at present; and if the kindergartens are to do their best and most useful work, the Board of Education will have to plant them thickly within easy reach of the very large number of poor children who stand most in need of their fostering care. This means more school-houses, more teachers, more appliances, a larger outlay of money. From this day, the kindergartens take on entirely new relations to the public. They cease to be a charity; they cease to be the privilege of any one class; they become the right of every parent who has children of the proper age. The kindergartens, if they are to succeed, must be thoroughly identified with the public school system of the city. The Board of Education had better have nothing to do with them, if it does not intend to incorporate them into the general educational system. You see, therefore, into how much larger a field of action the public schools will enter; in how many ways their influence will be extended. I do not stop now to consider the benefits which will flow from these changes. My object is simply to remind you that the establishment of the kindergartens as an integral part of the public school system is a work of no small magnitude; that it is fraught with many responsibilities; and that it is only by the hearty co-operation of Councils, the Board of Public Education and the Local Boards, sustained by an enlightened and liberal public

sentiment, that we may hope to lay such foundations and to rear such a superstructure as will enable the kindergartens to accomplish the work for which they have been instituted.

I desire to have it clearly understood, however, that I believe the kindergartens will be worth all that they cost. They will extend the benefits of public education in the direction where it is most needed. The great mass of the children who attend the public schools spend only about four years within their walls. The pressing necessities of life require that every member of a poor man's family shall contribute something to its support. Before the children have got beyond the simple rudiments of a common school education, they are withdrawn and sent forth into the world to swell the great army of its toilers. Laws prohibiting the employment of children are of no avail as against this necessity. Vast numbers of men and women have never known what childhood means. The hard realities which the struggle for mere existence crowds upon them so early, deny to them the opportunity for the growth and nurture of those qualities of mind and heart which add so much to the sum of life's enjoyment, and from the loss of which it is so hard to recover. But we must not undervalue the little that is gained by these few years of schooling. It is of enormous benefit alike to those who receive it and to the community of which they form a part; and every addition that can be made to the school privileges of the great body of the people goes to enrich the national life—every day that their stay in school can be prolonged is so much secured in the interest of a higher civilization. The city which can add two years to the school life of the mass of its children will confer a boon whose value it would be impossible to over-estimate. The chief argument in favor of the kindergarten is that it enlarges the privileges of the schools where the greatest number can avail themselves of their benefits. It increases

by just so much the possibilities of elementary education for the very large numbers of young children who now receive the smallest benefit from the schools. It is plain, therefore, that the kindergartens, while not organized exclusively in behalf of the poor, will inure chiefly to their benefit. They will provide educational opportunities that are immediately within their reach, and thus, while ministering directly to their good, cannot fail to exercise a salutary influence upon the well-being of the entire community.

I have stated thus broadly the most obvious advantage of adding the kindergarten to the public school system, but it is by no means the only one of importance. The intrinsic merit of the training which is given to the child is the great consideration which should always be put foremost in discussing the claims of the kindergarten as a part of any system of education. The kindergarten is a new thing; but this hardly excuses the mistaken views of what it is and what it aims to accomplish, which are so prevalent. It is generally regarded as an invention for entertaining little children. Nothing could be farther from the truth. It is true that the kindergarten plants itself firmly upon the spontaneous activities of childhood, and recognizes the tendency to play as one of the strongest of these; but this is simply the starting-point of the system. From this, as a postulate, it goes on to lay down a scheme of training which aims at the harmonious development of every power and faculty of man's being. Froebel, the philosopher of childhood, from whose fertile brain and glowing heart the kindergarten proceeded, was not the first to advance this large view of human education. Pestalozzi, following in the steps of the great line of educational reformers which begins with Comenius, had proclaimed the true doctrine of human culture to consist in developing and training the physical, intellectual, and moral elements of man's nature, each in its just relations to

the others, into power and use. But it is the glory of Froebel that he, first of all, taught that this complete and symmetrical training must begin with the earliest days of childhood. The secret of the kindergarten is that it never loses sight of the fact that it is dealing with the undeveloped, untrained powers of a little child. It develops the body; it cultivates the senses; it strengthens the receptive, and calls into operation the active faculties of the mind; it trains the social feelings and makes each member of the little society feel that its happiness depends not upon itself alone, but is bound up with that of all its members. And all this is done by treating the child, not as a machine to be set in motion by the teacher, but as a living, spiritual organism which grows by the free use of its own powers, which gathers force from every effort that it puts forth, and which passes by insensible degrees from the spontaneous play of feelings and desires, to the conscious exercise of faculties that find expression in creating and doing, in the production of forms that are alike useful and beautiful, in the performance of acts that are inspired by love and duty.

But the kindergarten is even more than this. While furnishing a system of educational training perfectly adapted to the conditions of childhood, its fundamental principles contain the roots of a philosophy of education more truly in accordance with human nature, more complete, more practical, than any system which has ever been devised. As already indicated, it is really the outcome of the best thought and experience of all the great thinkers and teachers who preceded Froebel. The kindergarten methods which are not involved in the special processes appropriate to little children are applicable to schools of every grade; and it will be a happy day when these methods have found their way into the primary schools, grammar schools, high schools, and normal schools of the country. We cannot close our eyes to the fact that the people are

becoming more and more dissatisfied with the instruction at present given in our schools. There is an urgent demand for better results, and it behooves school officers and teachers to give heed to this call. It devolves upon them to find the remedy. My conviction is that we shall look for it in vain until we are willing to accept the motives and principles which constitute the essential spirit of Froebel's philosophy. Our education must be made to accord more truly with the dictates of nature, and it must be brought into more intimate and direct relations with the needs of society. The age in which we are living demands a richer culture for the masses of the people than the schools, as at present constituted and managed, supply. But we shall get none of these things until our teaching has been radically changed. What has been done here to-day is, I trust, the beginning of better things for Philadelphia. Every intelligent and earnest teacher in the city must find encouragement in the fact that there has been added to its school system a feature which has won the confidence and support of every leading educator in Europe and America. I am sure that every department of our schools will, by and by, feel the inspiring influence which will flow from the presence of the kindergarten. The methods of instruction and discipline now followed cannot fail to be largely modified by its principles. No thinking mind, no intelligent instructor, can withstand the witness which the kindergarten bears against formalism and tradition, and in favor of freedom and progress in education. May we not all hope that the kindergarten will prove the leaven that is to leaven the whole lump, and help to raise our education to a higher plane of power and usefulness!

If time permitted, it would be found profitable to notice some of the objections which are made to the kindergarten; but I have already trespassed too long upon your patience. There is one objection, however, to which I

feel it to be my duty to call your attention for a few moments. In reply to all that I have been saying as to the advantages of making provision for the education of young children, we are told by many well-meaning persons that little folk of so tender an age should not be sent to school; that the right place for them is their home, and that the best teacher is their mother. Far be it from me to say one word which could be construed into any distrust of the blessings of a well-conducted home or the loving care of a faithful mother; but in the progress which educational science has been making during the last half century, may we not find some reason for revising the judgments that we have been accustomed to regard as final? Experience, as well as the opinions of the ablest teachers, assure us that the sooner we begin to educate the child the better. I say *educate*, because we must make the broad distinction between the development and training of a human being, as Froebel understood it, and the methods of instruction which are still too common in our primary schools. To educate a little child, in the right sense of that term, is a very difficult task. The notions commonly entertained on this subject—notions, I fear, altogether too wide-spread—are, I beg to say, very erroneous. The skilled, experienced teachers are reserved for the higher schools, while the untrained novices, the failures in grammar schools, and, in many cases, the imperfectly educated class, are put to work in the primary grades. But no greater or more harmful mistake could be made. There should be an unanimous protest against employing poor teachers anywhere; but the discrimination should certainly not be made against the primary schools. I give it to you as my sincerest conviction that no community will ever get the best fruits of a system of public education until it employs women of culture and refinement, of training and experience, in the lower grades of instruction. My conception of a

kindergartner is that of a woman who meets all these requirements. We are beginning to find this out, and in many portions of the country the same requirements are made, and the same compensation is allowed to the teachers of the lower as to those of the higher grades. Now, given such teachers as I have described—and they are within the reach of any city that desires their services—I have no hesitation in saying that the young child can be better educated in the kindergarten and the primary school than by the unaided efforts of any mother, no matter how favorable may be the conditions which surround her. We forget how numerous are the cares and duties of a woman who has the responsibility of a household, and how little time she can give to the systematic training of her children. The kindergarten steps in, not to supersede the home, not to supplant the mother, but to supplement and complete the functions of both, so far as fuller and more thorough methods of culture are concerned. The kindergarten and the home, the kindergartner and the mother, become the closest of allies in all that relates to the physical, mental and moral well-being of the child. But all this is aside from the actual problem with which this and every large city has to deal. There are thousands of children in Philadelphia who know little or nothing of the influences which go to make up a home; whose only chance of receiving any training worthy of the name must come from other sources. Not only this, but there are multitudes of little ones who spend a large portion of their waking hours upon the streets, drinking in at every sense evil influences that poison the springs of their young life. It is to this class that the kindergarten opens its inviting doors, and asks them to come and receive the skillful training, the watchful care, the loving kindness, which may prove the saving grace of their lives. To these little ones, the kindergarten becomes all that home means

to your children and to mine. It opens vistas of happiness which would otherwise have remained forever closed to them; it brightens their daily life with the charms that attend the normal exercise of body, mind and heart; and it plants deep down in their inmost being seeds that long afterwards may bear fruitage in pure, useful and worthy lives.

I shall have to omit any reference to some practical questions that will come up at an early day in connection with the management of the kindergartens. Let me simply call your attention to the importance of organizing them upon the highest plane of excellence. A poor school of any kind is one of the most worthless agencies in the social economy; but a poor kindergarten is still worse. The kindergarten is yet so new in this country, its purposes are so little understood, and the supply of competent kindergartners is so limited that there is constant danger of its degenerating into meaningless routine and aimless effort. Far better have no kindergartens at all, than such as are mere travesties of the name. I must not conceal from you that not a few of this kind have managed to spring into existence everywhere. Nothing will maintain the kindergarten in its purity but the presence of broadly cultured and thoroughly trained kindergartners. This is the only condition on which it can live, and this is the practical difficulty which must be encountered wherever its establishment upon a large scale is attempted. We must expect to meet it here, and I can see no safeguard but in providing a training-school of our own—in connection with the Normal School, if that is thought best—from which we can draw an ample supply of kindergartners, fully equipped for the work. No doubt the attention of the Board of Education will be called to this necessity at an early day, and I am sure that, with the right public sentiment on the subject, it can be depended upon to take such action as the exigencies of the case may require.

But we need have no fears for the future. The rapid advancement which public education has made in Philadelphia during the past few years is the strongest assurance that this effort to enlarge the scope and increase the efficiency of the school system will be carried to a successful issue, as is every good cause which promises to promote the intelligence, the morality, the prosperity and the happiness of the people.

## THE EXHIBITION OF INDUSTRIAL WORK.

The Exhibition of Industrial Work held in May, 1888 was so important an incident in the history of the public schools of Philadelphia that it seems proper that some statement of it should be made here. For a year or two previous, the small local exhibitions which had been held at the close of the terms in a number of schools had been largely attended; but the friends of the advanced position taken by the city on the question of manual training felt that a larger opportunity should be afforded to inform the people as to the nature of these new features of the public education, and to bring before them in tangible form the methods employed and the practical outcome of the training given. Although no formal action was taken by the Board of Education there could be no doubt as to its willingness to favor such a scheme. The insuperable difficulty which stood in the way was the very considerable amount of money that would be needed to defray the expenses of an exhibition which would present the various features of the manual instruction upon a scale and in a manner creditable to the schools of the city. The Board had no funds available for this purpose, and it did not feel justified in asking for a transfer of any portion of the appropriations specifically set apart for the several departments of the school system. But the assistance needed in this perplexity was soon forthcoming. The Public

Education Society came forward with a generous offer to become responsible for the entire expense of the exhibition. The only restriction it imposed was that nothing should be left undone which might be necessary to bring the exhibition up to the highest expectations of the public. This liberal and public-spirited proposition was accepted by the Board, a special committee was appointed, and in due time the exhibition was opened to the public.

The scope and purpose of the exhibition were fully and explicitly set forth in the circular issued at the time. This circular is given below as the best means of presenting the scheme of the exhibition in its entirety, and the various arrangements by which it was carried into effect. It affords me very great satisfaction to be able to state that every part of this extended program was fully realized. The great hall in which the exhibition was held was filled to overflowing with work representing several of the newer features of the instruction and training given in the schools, and the throngs which came to see the products of the children's intelligence and skill bore testimony to the growing interest which the people take in the improvement of the public education of the city.

# Philadelphia Public Schools.

EXHIBITION OF INDUSTRIAL WORK, MAY 9, 10, 11, 12, 1888.

BOARD OF PUBLIC EDUCATION,
SUPERINTENDENT'S OFFICE,
*March 3, 1888.*

*To the Principals of the Public Schools :—*

The Board of Public Education has authorized an exhibition of all kinds of art, manual and industrial work done in the public schools, to take place at Horticultural Hall during the month of May; the Public Education Association of this city having generously provided the funds to defray the expenses of the same.

The exhibition will consist of all kinds of school work that can be represented graphically or objectively, viz.: manual training, industrial art work, sewing, kindergarten work, drawing, map-drawing, penmanship, clay-modeling, and manual work of every kind produced in the schools. It is intended to make the exhibition as complete as the means and time at command will permit without interfering with the regular school work.

The following outline of the plan, and directions for carrying it into operation, are for your information and guidance :—

The exhibition will include the following particulars :—

**I. Pupils' work.**

**II. Drawings and photographic views of the school buildings.**

**III. An exhibit of the Supply Department of the Board of Public Education.**

**IV. An historical exhibit.**

**V. Statistical statements of the educational system of the city.**

**VI. An exhibition of school work representing the practical operation of the following departments:—**

1. Manual Training School.
2. Industrial Art School.
3. Sewing Classes.
4. Kindergartens.
5. Cooking Classes.

**VII. An exhibit showing the relation of the public schools to the other educational institutions of the city in which public school scholarships are held.**

**I. The pupils' work will form the most important part of the exhibit. It is intended to be a full and fair exhibit of the regular work of the schools performed since September last. The exhibit will include the work done in all the grades of the Primary, Secondary and Grammar Schools, as many classes of the Central High, Girls' Normal, and Manual Training Schools, as can be provided for, the Industrial Art School and the Kindergartens, as follows:—**

1. PRIMARY SCHOOLS.—Drawing, Penmanship, Clay Modeling (Geometric Forms, etc.), and manual work of any kind done in the schools.

2. SECONDARY SCHOOLS.—Drawing, Map Drawing, Penmanship, Clay Modeling (relief maps, etc.), Sewing and manual work of other kinds.

3. GRAMMAR SCHOOLS.—Drawing (constructive, representative, decorative), Map-Drawing, Penmanship, Sewing, Clay Modeling (relief maps, etc.)

4. KINDERGARTENS.—All the gifts and occupations employed in the children's work.

5. INDUSTRIAL ART SCHOOL.—Model and Objective Drawing, Decorative Design, Clay Modeling, Wood Carving.

6. MANUAL TRAINING SCHOOL.—Free-hand, Mechanical, Architectural, Decorative and Map Drawing, Modeling in Clay (decorative, architectural, relief maps) Wood Work (carpentry, joinery, turning, pattern-making, model-

ing, carving), Iron Work, (vise-work, smith-work, tempering), Moulding, Brazing, Mechanical Construction, Electricity and its appliances.

7. GIRLS' NORMAL SCHOOL.—Drawing (constructive, representative, decorative), Sewing.

8. CENTRAL HIGH SCHOOL.—Drawing (constructive, representative, decorative, mechanical), Map Drawing.

**II. The Department of Property and Buildings will exhibit photographs and drawings of the elevations and ground plans of school buildings recently erected, and drawings or photographs of two or three of the oldest public school buildings still standing in the city.**

**III. The Supply Department.—A representative exhibit of the supplies of every kind furnished to the public schools.**

**IV. Historical Exhibit.—Two school-rooms are to be fitted up to represent the arrangements and conveniences for public school education furnished by the city to-day and a half century ago, as follows:—**

1. A school-room containing a complete outfit of the newest and finest furniture at present in use, black-boards, maps, charts, pictures, globes, text-books, stationery and appliances of every kind furnished by the Board of Public Education for the use of pupils and teachers.

2. A school-room restored as far as possible from the oldest furniture in the city, and intended to represent the furnishing and outfit of a school-room as far back as the material obtainable can be secured for this purpose.

**V. Statistical Statements.**

1. A large statistical chart showing the actual condition of the schools at the present day.

2. A large statistical chart showing the growth of the school system from its origin, by periods.

3. A chart showing the classification of the pupils in the various departments and grades of the public school system.

4. A map of the city showing the location and distribution of the school-houses of all kinds.

**VI. An exhibition showing the practical operation of the following departments of the school system.**

1. MANUAL TRAINING SCHOOL.—Classes engaged in Wood-work and Iron-work.

2. INDUSTRIAL ART SCHOOL.—Classes engaged in Drawing, Clay Modeling and Wood Carving.

3. SEWING.—A sewing class under the instruction of a sewing teacher.

4. KINDERGARTENS.—A kindergarten class pursuing the occupations and games under the direction of a kindergartner.

5. COOKERY CLASSES.—A cookery class from the Girls' Normal School under the direction of the instructor in cookery.

The classes in these several departments will be furnished by relays of pupils from the various departments of the school system which are represented. Stated times will be fixed for the exhibition of work done by these classes.

**VII. An exhibit showing the relation of the public school system to other educational institutions of the city in which public school scholarships are held.**

1. Drawings executed by pupils holding public school scholarships in the School of Design for Women.

2. Work done by pupils holding public school scholarships in the Pennsylvania School of Industrial Art.

3. Work done by pupils holding public school scholarships in the Towne Scientific School, University of Pennsylvania.

GENERAL ARRANGEMENTS.

1. The exhibition will be arranged in the main hall in the order of the Sections. The work of every kind done by the Primary, Secondary and Grammar Schools will be

exhibited by Sections, and each Section will be assigned a space proportional to its enrollment of pupils. The School of Practice will be assigned a space in line with the Sections.

2. Separate spaces will be assigned for the exhibits of the Central High, Girls' Normal, Manual Training, and Industrial Art Schools, and the Kindergartens, respectively.

3. Large wall exhibits and exhibits of a special character, will be assigned additional space outside of the main exhibition hall, but no exhibit of any kind will be received that is not approved by the Superintendent of Schools.

4. The public will be admitted without cards, but the pupils of the public schools will receive cards of admission, and arrangements will be made by which the pupils of the several Sections may visit the exhibition with their parents at stated times.

5. The exhibition will open on the morning of May 9th. The two days preceding the 9th will be given to the arrangement of the exhibits. Each Section will attend to arranging its own exhibit. All the exhibits must be in place by the evening of May 8th, and no additions to any exhibit will be permitted after that time. Each Section should have its exhibits selected, classified and ready to be put up by May 6th.

6. The exhibition will be open from 10 A.M. till 10 P.M.

7. An exhibition of the several classes of pupils at work will take place each day from 10 A.M. till 12 M., from 3 till 5 P.M., and from 7 till 9 P.M.

### RULES TO BE OBSERVED BY PRINCIPALS IN PREPARING EXHIBITS.

1. All the work exhibited must have been done since September 1, 1887.

2. The drawings must be upon the white drawing paper supplied by the Board of Public Education.

3. The map-drawing must be executed upon the white paper furnished by the Board and *must be entirely free-hand.*

Maps representing the natural productions of the various Grand Divisions and the United States may be executed upon the tracing maps supplied by the Board of Public Education, and may be colored at the option of the teacher.

Large wall maps representing special geographical features may be executed at the option of the teacher.

4. Clay Modeling may include geometric solids, relief maps, and any other work of this kind done in the schools. Small relief maps (on panels not exceeding 14x10 inches) must be the work of individual pupils. Large relief maps, executed by a number of pupils, may be sent for exhibition.

5. Sewing exhibits should contain work of every kind done in the sewing classes. In selecting the exhibit, it should be made to represent the largest range of work possible.

6. The work of every kind exhibited must be the *exclusive work of the pupils*, and no exhibit will be received unless the Principal sending it shall certify to this fact.

7. It is important that the exhibit of each Section should represent all the kinds of manual work done in the schools. It will be desirable, therefore, to have a local committee for the purpose of making a proper selection for the exhibit to be sent.

8. Principals of schools intending to send an exhibit, will notify the Superintendent of Public Schools to that effect, on or before the first day of May.

Further information as to details will be furnished from time to time as occasion may require.

By order of the Special Committee on Exhibition of Industrial Work.

JAMES MACALISTER,
*Superintendent Public Schools.*

At the close of the exhibition a report was made by the special committee to the Board of Education containing a statement of all the details connected with the management of the exhibition and a good deal of information which will be of permanent value. Among other interesting facts it was stated that not less than 15,000 square feet of wall, table and platform space was occupied by the various exhibits, and that 85,000 persons visited the exhibition during the four days that it was in progress. The general sentiment entertained concerning the exhibition is no doubt correctly expressed in the concluding paragraph of the report:—

"The Committee cannot too warmly express its approval of the spirit displayed by Philadelphia in this great educational movement. The Exhibition is to be regarded as one of the most important events in our school history—important in its immediate influence, but vastly more so in its bearing upon the future. The feasibility of a general system of co-education of head and hand has been established beyond peradventure; and in presenting with more than usual detail the permanent features of the Exhibition, the Committee have been actuated solely by the desire to place on permanent record the part taken by Philadelphia in the inauguration of what must be regarded as the most important educational reform of the present time."

# APPENDICES.

# APPENDIX I.

## SYNOPSIS OF THE COURSES IN DRAWING AND TOOL INSTRUCTION IN THE MANUAL TRAINING SCHOOL.

### COURSE IN DRAWING.

The importance of drawing in its application to manual training cannot be over-estimated. It is, in fact, the first step in manual training. Without drawing, the use of tools becomes a mere mechanical imitation, and has little value as an educational factor. From the conception of the idea to its expression in the concrete material, the drawing is the medium through which the mechanical processes are logically developed and brought to a definite and practical form.

From the beginning, therefore, the pupil is taught to interpret working drawings, and to reproduce from them the indicated forms. He must understand the language in which they are described, and acquire by education and experience the ability to obey it.

While drawing underlies all industrial work, its application is not limited to mechanical construction. Throughout all the departments, drawing is the common language used in explaining facts, ideas and principles. By means of historical, botanical, and topographical maps, literary and economic charts, geometric and electrical diagrams, anatomical and geological sketches, the pupil graphically expresses the lessons taught in the class-room.

The course in drawing has three general divisions:—

*First.*—Constructive drawing, as the basis of all industrial pursuits.

*Second.*—Representative drawing, designed to educate the sense of form and proportion, to teach the eye to observe

accurately and to train the hand to delineate rapidly the forms of objects.

*Third.*—Decorative drawing, used as a means of cultivating the taste, and developing an appreciation and love of the beautiful.

FIRST YEAR.

CONSTRUCTIVE DRAWING. (*Mechanical.*)—Proper care and use of instruments; class study of the geometric facts of shape and size in typical solids; the method of representing and describing such facts applied in the preparation of free-hand dimension sketches of the exercises which are afterwards made in the shops; finished working drawings made to scale from them; orthographic projections; sections and intersections, and surface developments; lettering; conventional methods and technicalities in accordance with the best modern practice of the draughting-room.

REPRESENTATIVE DRAWING. (*Free-hand.*)—The analysis of forms, singly and in groups, prepares for their accurate representation on paper or the blackboard. Much practice is given in making drawings of various objects seen out of school, yet based upon the simple geometric solids, casts, and natural forms upon which the pupil has received instruction and practice in the school-room.

DECORATIVE DRAWING. (*Design.*)—Elementary geometric design; straight lines, curved lines, and their combinations; geometric figures; elementary conventional design.

SECOND YEAR.

CONSTRUCTIVE DRAWING. (*Mechanical.*)—Preparation of finished working drawings from free-hand dimension sketches, from blackboard drawings, and from dictated directions; drawings of patterns and forge work to be used in shops. Shop tools and machine details—such as calipers, wrenches, pipe fittings, pulleys, details of engineering structures; parts of lathe; steam engine, etc.; development of surfaces applied in preparing working drawings for tin-smithing exercises.

REPRESENTATIVE DRAWING. (*Free-hand.*)—Representation of the appearance of rectangular and circular objects, with shades and shadows. Free-hand drawing from simple casts and natural forms.

DECORATIVE DRAWING. (*Designing.*)—Typical historic forms, and simple natural forms conventionalized; design to fill given space; borders and surface covering; principles of

arrangement; repetition; alternation; cumulation; radiation; symmetry.

THIRD YEAR.

CONSTRUCTIVE DRAWING. (*Draughting.*)—Machine drawings, tracings, and blue prints, made from blackboard and notebook sketches; drawings of steam engine and electric motor to be used in the "projects" in the shops; isometric drawing; ornamental coloring and India ink shading with pen and brush; designing of screw threads, gear wheels and parts of machinery, from specifications; plotting of irregular mechanical movements.

REPRESENTATIVE DRAWING. (*Free-hand.*)—Advanced free-hand drawing from models, casts, natural and historic forms; light and shade; coloring. Elements of linear perspective and the perspective of shades and shadows.

DECORATIVE DRAWING. (*Designing.*)—Geometric, historic, and conventional forms in design; analysis and conventionalization of natural forms; designing of repeated patterns and repeated forms; planning of ornament. Applied design; analysis of colored designs; original designs in color and in relief.

BUILDING CONSTRUCTION AND ARCHITECTURE.—The object of this Course is to familiarize the pupil with the typical forms, processes and principles of building construction, the elements of planning and design, and sanitary conditions; to present the subject of architecture from an historical standpoint, and combine therewith the comparative study of structural and ornamental features; and to cultivate a taste for the beautiful in art and architecture.

Illustrated lectures, study of notes, drawings, charts, photographs, ornamental forms, reference books.

Study of existing buildings and structures, and the typical forms found therein, with special reference to the application of the principles of construction in stone, brick, wood, iron, etc.

Examination of buildings in course of erection, for methods and processes; building materials.

Architectural sketches and drawings; blackboard illustrations; typical forms seen in buildings—structural and ornamental; figured sketches of the building selected by the pupil for set of architectural drawings—foundation and floor plans, elevation, vertical section, perspective view and details; study of historic ornament.

CLAY MODELING accompanies the more advanced work in draw-

ing from casts and natural forms, and design in low and high relief. In modeling in clay, as well as in the wood carving, it is the aim to give a better conception of form and proportion than is attainable on the flat surface.

Simple studies of ornamental forms from casts and carvings; modeling of single plant forms from nature; original designs in relief.

Modeling from designs, drawings, photographs, carvings, casts and nature.

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COURSE IN TOOL INSTRUCTION.

In this department, which is the distinctive feature of the school, each exercise involves a mechanical principle, and the chief object of the instruction is the development of this principle rather than a finished piece of work. The exercise has value only as it has rendered educational service during its construction. In the changing conditions of the thing in hand during its construction, there is a constant necessity for creating new means to meet new requirements, and the directive skill thus evolved makes manual training rise to the level of scientific or mathematical studies as a means of intellectual development.

Other values of a specific nature—accuracy of measurement, precision of adjustment, delicacy of manipulation, exactness in every particular—must be taken into account in estimating the educational value of manual work.

All the articles made in the shops are required to be of precise forms and dimensions given in a drawing made by the pupil himself previous to taking up the exercise. The aim is to teach the pupil to express his thought in a concrete form, with the least waste of material, in the most workmanlike manner, and in accordance with the most approved methods.

*First Year.*

In the wood shop, in the first year, the pupil begins by laying out his work on a piece of rough board; he then proceeds with various exercises in sawing, planing, squaring, chiseling, mortising, mitering, nailing and dovetailing,—receiving in the meantime lessons in the design, structure and use of tools.

Running parallel with the work in joinery, and occupying the same length of time, is a course of vise-work, which includes chipping, filing and fitting of plane and curved surfaces.

*Second Year.*

In the second year, the course in wood-work is continued in a series of exercises in pattern-making, which are afterwards used in the foundry in moulding and casting. In connection with pattern-making, the pupils are taught wood-turning.

In the manipulation of wood and cold iron, the material will wait for the pupil to exercise his judgment as to the best method of doing the work. In the forge shop, however, where hot iron is to be manipulated, quickness is an essential requisite, the necessity of "striking while the iron is hot" being imperative. As a preliminary step, the processes involved in forging are first worked out in lead. The operations are then performed in hot iron in a series of exercises in drawing out, upsetting, shaping, bending, and in the making of rings, bolts, chains and tongs. Welding and the tempering of steel follow; and, at the end of the second year, each pupil is required to make the chisels and a set of turning tools for his third year's work in the machine shop. A short course in tin-smithing and brazing is also taken up the second year.

*Third Year.*

In the third year, the principles taught the first and second years are practically applied to mechanical construction. In the wood shop, each pupil is required to make one or more models, such as planes, pulleys, parts of machines, etc. In the machine shop is a course of vise-work involving the chipping, filing, and fitting of curved and plane surfaces used in machinery, and also a course of iron turning. As a final exercise, the class will be required to make from their own drawings and measurements, as a "project," some mechanical construction embodying the principles they have been dealing with and the practical ability they have acquired.

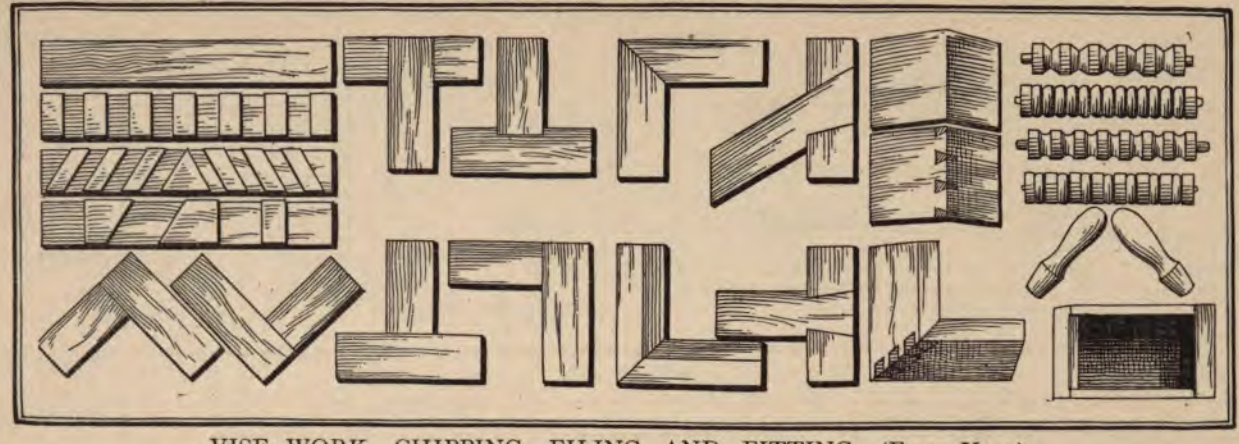
A course in wood-carving forms a part of the work of the third year.

# SYNOPTICAL TABLE OF THE COURSE OF INSTRUCTION.

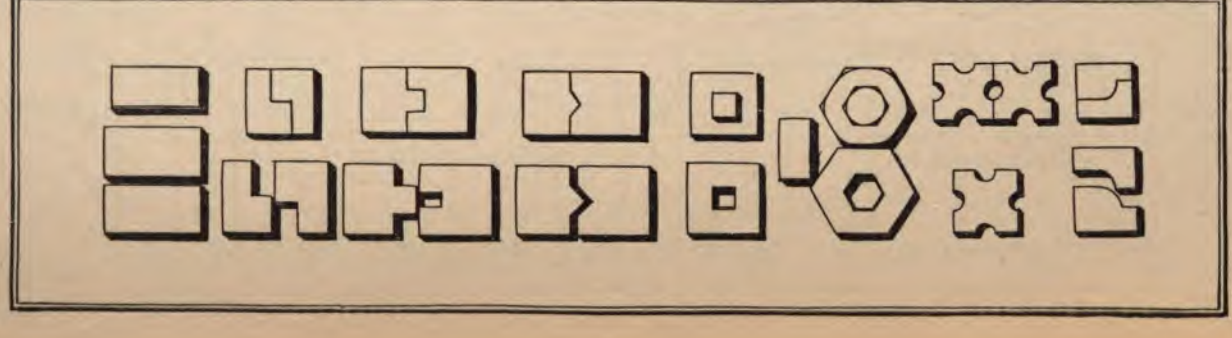
| | CLASS D, 1st TERM. | | | | CLASS C, 2d TERM. | | | |
|---|---|---|---|---|---|---|---|---|
| **FIRST YEAR** | **1st Month** | **2d.** | **3d.** | **4th.** | **5th.** | **6th.** | **7th.** | **8th.** |
| Elementary Drawing and Designing | Non-Imitative and elementary line work | | Conventional forms | | Plant forms | | Combinatian of preceding forms | |
| Blackboard Drawing | Units of above | | Units of above | | Units of above | | Units | |
| Model and Object Drawing | Simple Geometric forms in linear | | Plant and Vase forms | | Animal forms | | Arrangements of preceding forms | |
| Clay Modeling | | Non-Imitative and elementary forms | | | | Conventional and Plant forms | | |
| Wood Carving | | | | Linear Square straight and angle cutting | | | | Simple low relief |

| | CLASS B, 3d TERM. | | | | CLASS A, 4th TERM. | | | |
|---|---|---|---|---|---|---|---|---|
| **SECOND YEAR** | **1st Month** | **2d.** | **3d.** | **4th.** | **5th.** | **6th.** | **7th.** | **8th.** |
| Drawing and Designing | Greek elements and style | | Roman elements and style | | Moresque elements and style | | Gothic elements and style | |
| Blackboard Drawing | Units of above | | Units of above | | Units of above | | Units of above | |
| Model and Object Drawing | Geometric forms in Perspective | | Plant or vase forms in perspective | | Animal forms foreshortened | | Arrangements of preceding forms | |
| Clay Modeling | | Elements used in drawing for the preceding month | | | | Elements used in drawing for the preceding month | | |
| Wood Carving | | | | High and low relief in style | | | | Original panel |

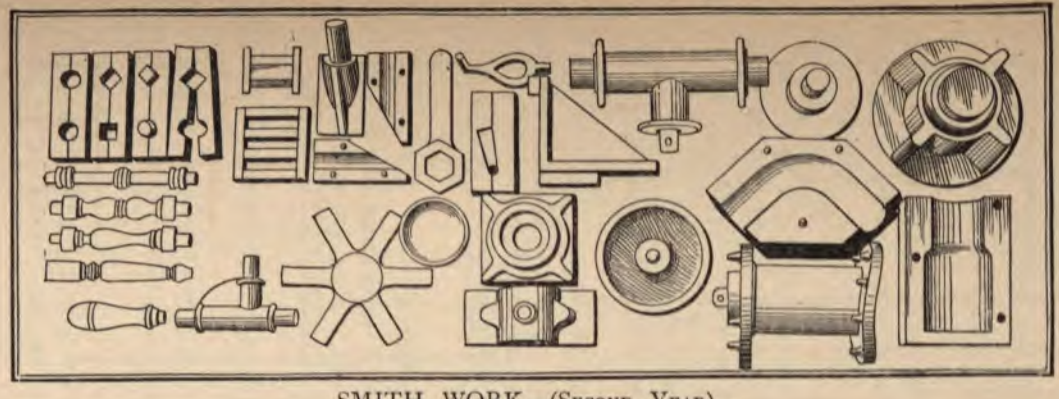
CARPENTRY AND JOINERY—(First Year).



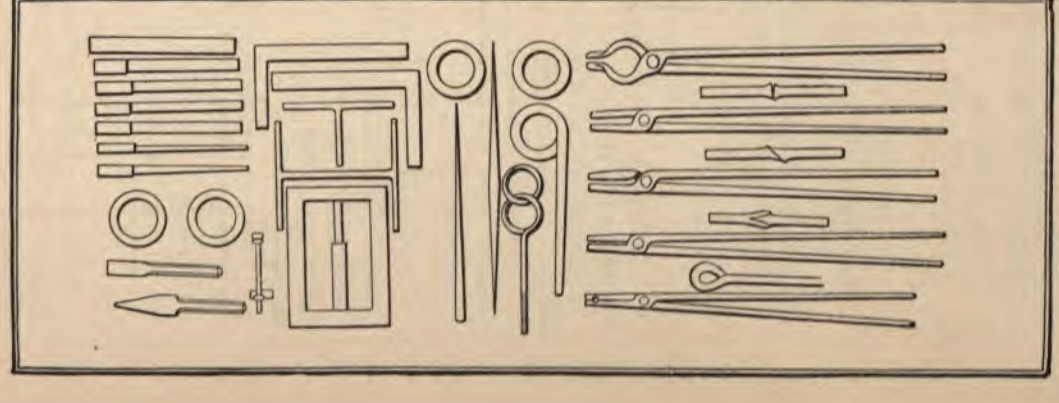
VISE WORK, CHIPPING, FILING AND FITTING—(First Year).



PATTERN MAKING AND TURNING—(Second Year).



SMITH WORK—(Second Year).



# APPENDIX II.

## SYNOPSIS OF THE COURSE OF INSTRUCTION AND TRAINING IN THE INDUSTRIAL ART SCHOOL.

### BLACKBOARD WORK.

1. Free-hand drawing on the blackboard by each pupil every session in the designing rooms.

2. Pupils will invariably begin with the first period unit and elements upon entering the school.

3. Lectures and blackboard demonstrations on the structure and meaning of ornament and design in material.

### MODEL AND OBJECT DRAWING.

1. All work must be free-hand in this department; no rules or compasses.

1. Simple geometric forms in linear. 2. Plant and vase forms. 3. Animal form. 4. Arrangement of preceding forms. 5. Geometric forms in perspective. 6. Plant forms in perspective. 7. Animal forms fore-shortened. 8. Arrangement of preceding forms.

### CLAY MODELING.

1st Period.—Non-imitative and elementary forms. 2d. Conventional and plant forms. 3d. Elements used in drawing for preceding month. 4th. Elements used in drawing for preceding month.

1. How to temper the clay, keeping moist, wedging, etc.
2. Training in the use of tools.
3. Modeling in low and high relief from original designs.
4. Modeling in low and high relief from casts.

### WOOD CARVING.

1st Period.—Linear, straight, square and angle cutting. 2d. Simple low relief. 3d. High or low relief in style. 4th. Original panel.

1. Instruction in the use and care of tools.
2. The transferring of designs.

3. Low and high relief carving in hard wood, bosses, scrolls, mould sinking.

4. Carving enrichment for cabinets work, panels, etc.

ELEMENTARY DRAWING AND DESIGNING.

1. Non-imitative elements and line-work. 2. Conventional forms. 3. Plant forms. 4. Combination of preceding. 5. Greek elements and style, 6. Roman elements and style. 7. Moresque elements and style. 8. Gothic elements and style.

1. All work to be free-hand.

2. Designs in the various grades in every case to be original and for the purpose of being used in wood, clay, metal, fabrics, etc.

3. The importance of designing for some purpose, and in some material, to be kept constantly in view.

4. Making designs to obtain proficiency in linear drawing and simple washes.

5. Working designs in monochrome for training the pupils in handling the brush.

# APPENDIX III.

## SYNOPSIS OF THE COURSE OF INSTRUCTION AND TRAINING IN SEWING FOR GIRLS' SCHOOLS.

SECONDARY SCHOOLS.[1]

*Fifth Grade.—Five months.*

Position of the pupils while engaged in sewing.

The proper use of the thimble finger, first finger and thumb of the right hand. Position of the left hand for holding the work. Drill in the same.

Exercises in the action of taking a stitch and drawing the thread through the material.

Drill in the threading of the needle. (Needles and thread may be given out at the beginning of the lesson.)

Turning, basting and sewing plain hems. Attention to be

[1] In Philadelphia the term Secondary is used to designate the schools which include the third and fourth years of the course of instruction.

given to accuracy in width of hems and size of stitches used in basting and hemming. Correct use of the scissors (paper may be supplied for this purpose).

Over-seaming on turned edges; the raw edges may be turned in and hemmed down.

If more material is needed than that furnished by the Board of Education, towels, wash-rags and similar articles may be hemmed.

*Sixth Grade.—Five months.*

Questions and exercises in the use of thimble, scissors, threading the needle, the direction of the needle as used in basting and sewing a hem. Time for these exercises, five minutes.

Over-seaming, with explanations and exercise in joining a new or broken thread.

Running seam, composed of one running and one back-stitch; the raw edges to be overcast.

Cutting out and making simple articles, *e. g.*, children's bibs, plain over-sleeves.

Work brought from home may be table-napkins, towels, bags, desk-covers and pillow slips.

*Seventh Grade.—Five months.*

Questions on position, the proper use of the thimble and scissors. Exercise in threading the needle. Questions on the direction of the needle when used in basting, hemming and over-seaming. Time for this exercise, five minutes.

Reversible seam.

Plain fell, sewed with running stitches, strengthened by an occasional back-stitch and finished with hemming.

Back-stitched seam overcast on the raw edges. Patching commenced.

Cutting out of plain under-waists without seam under arm.

Work brought from home may be towels, table-napkins, pillow slips, ruffles to hem, bags and worn articles that may need patching.

*Eighth Grade.—Five months.*

Questions on the work of lower grades. Time for this exercise, five minutes.

Plain fell repeated. Gathering, placing or stroking the same.

Sewing the gathers into a band, using half back-stitching; the band finished with hemming.

Darning commenced. Work to consist of stocking darning and dress darning.

Cutting out patterns of under-waists and aprons of all kinds.

Work brought from home may be aprons, under-waists, combing-towels, shoe-bags, ruffles to hem and gather, darning and mending.

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GRAMMAR SCHOOLS.[1]

*Ninth Grade.—One year.*

Narrow hems; hems of medium and broad widths.

Tucks. Threads should not be drawn from the material to secure straight tucking.

Narrow plain fells. French fells.

Fine gathering, hemmed to a band.

Button-holes. Gussets.

Shirt, or other four-holed, buttons sewed on.

Stocking mending and patching.

Cutting out and making drawers from actual measurements.

Shoe-bags, sleeves, aprons, muslin skirts, and plain under-garments may be brought from home to be made and kept in school until finished.

*Tenth Grade.—One year.*

Bias seams of all kinds.

Gathering, as done on dress skirts, to be over-seamed to a band.

The two stitches used on flannel under-garments, viz.: herring-bone stitch and feather stitch.

Button-holes.

Cutting out and making gored skirts.

Children's plain underwear, boys' shirt-waists, collars and cuffs, dusting-caps and plain flannel skirts may be supplied from home.

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[1] The Grammar Schools include the fifth to the eighth years inclusive, of the course of instruction.

*Eleventh Grade.—One year.*

Questions and review of all work done in previous grades.

Paper patterns drawn and cut for under-garments from actual measurements.

Material for such garments brought from home and cut out in school. Pupils taught to place the patterns properly and economically on the muslin.

Work basted and fitted on the pupils.

*Twelfth Grade.—One year.*

Review of all work done in previous grades.

Pupils should be required to decide which seams should be used for the several parts of garments cut and made in this grade.

First steps in dressmaking.

Method of basting lining and material together, for dress waists and sleeves. Trying on and fitting the same.

Adjusting facings to lined, gored skirts; sewing on braid, etc.

Mending of all kinds must be encouraged by the teacher.

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